

03/18/05
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

NOTICE OF APPEAL FROM THE EXAMINER
TO THE BOARD OF APPEALS

AF#
JRW

Applicant(s): Blasé et al.

Serial No.: 09/819,574

For: Membrane Module

Filed: March 28, 2001

Examiner: Krishnan S. Menon

Art Unit: 1723

Confirmation No.: 2561

Customer No.: 27673

Attorney Docket: 608.0008USU

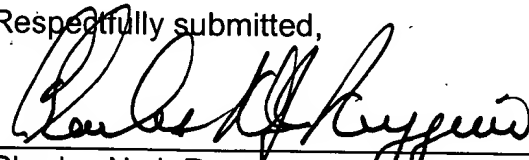
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Please charge any additional fees or credit any such fees, if necessary to Deposit Account No. **01-0467** in the name of Ohlandt, Greeley, Ruggiero & Perle. A duplicate copy of this sheet is attached.

Respectfully submitted,



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March 17, 2005

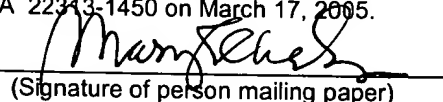
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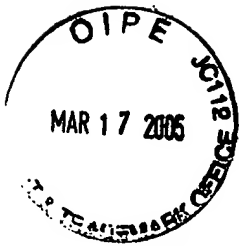
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Mary R. Charles

(Typed name of person mailing paper)


(Signature of person mailing paper)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants: Blasé et al.
Serial No.: 09/819,574
For: MEMBRANE MODULE
Filed: March 28, 2001
Examiner: Krishnan S. Menon
Art Unit: 1723
Customer No.: 27,623
Confirmation No.: 2561
Attorney Docket No.: 608.0008USU

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF FILED UNDER 35 U.S.C. §134

Dear Sir:

Further to the Notice of Appeal filed on January 18, 2005, the Appeal Brief filed herewith under 35 U.S.C. §134 and 37 C.F.R. §1.192(a) is believed to comply with the requirements set forth in 37 C.F.R. §1.192(c).

(1) Real Party in Interest

The real party in interest is Mebraflow GmbH & Co. KG Filtersysteme. Ownership by Mebraflow GmbH & Co. KG Filtersysteme is established by assignment document recorded for this application on March 28, 2001 on Reel 011644, Frame 0801.

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(2) Related Appeals and Interferences

The undersigned attorney is not aware of any related patent applications or patents involved in any appeal or interference proceeding.

(3) Status of the Claims

Claims 1 through 28 have been cancelled. Claims 29 through 39 are pending in this application, and are the subject of this Appeal. The claims on appeal are set forth in Appendix A.

Claims 29-32 and 35-39 stand rejected under 35 U.S.C. §102(b) and, in the alternative, under 35 U.S.C. §103(a) over U.S. Patent No. 5,062,910 to Garcera et al. (the Garcera '910 patent). Claims 33 and 34 were rejected under 35 U.S.C. §103(a) over the Garcera '910 patent in view of U.S. Patent No. 4,849,104 to Garcera et al. (the Garcera '104 patent).

(4) Status of Amendments Filed Subsequent to Final Rejection

An Amendment after Final was filed on November 17, 2004. The Amendment after Final cancelled claims 22 and 26 through 28 and amended claim 29. An Advisory Action was mailed December 1, 2004. The Advisory Action entered the Amendment after Final for purposes of Appeal.

(5) Summary of the Invention

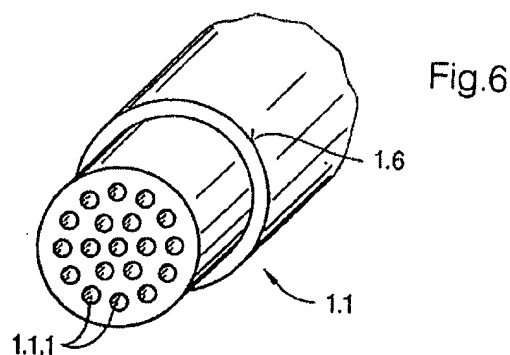
The present invention relates to a membrane module that serves for the process of separating a component from a liquid or a gas. The membrane module includes a number of rod-shaped ceramic filter elements, which are arranged parallel to one another. Groups of such filter elements are assembled for the most part and are clamped at each end by means of covers. The covers have a number of openings corresponding to the number of filter elements. The inside diameter of each opening is thus generally somewhat larger than the outer dimension of the

terminal region of the individual rod. The intermediate space between each rod its opening is filled by a sealing ring. See page 1, lines 3-12.

The production of the individual filter element is associated, among other things, with an annealing process, which requires maximal temperatures. This can lead to a distortion of the material so that the final dimensions of the filter elements after the complete termination of the production process are not predictable. See page 1, line 17 through page 2, line 7.

The present invention addresses this problem by providing individual rod-shaped elements that have, in the terminal region, a smaller size when compared with the size of the main part of the elements. In this way, a shoulder is formed between the main part of the individual rod-shaped filter element and its terminal region. See page 4, lines 13-20. In addition, the present invention reinforces the terminal region of the individual filter element on the peripheral surface. See page 9, lines 6-11.

The claimed shoulder of the present invention can be best seen with reference to Figure 6, which is reproduced below for the convenience of the Board:



These shoulders can be used for the purpose of taking up axial thrust, which acts on the filter elements during the operation of the membrane module. See page 4, lines 17-21. Advantageously, the smaller diameter of the reinforced terminal region does not restrict flow of the medium through the terminal region. For example, the flow channels through the rod-shaped filter element have a constant inner dimension even in the area of the terminal region.

(6) Issues

A. The first issue presented for review is the propriety of the final rejection of claims 29 through 39 under 35 U.S.C. §102(b) or §103(a) over the Garcera '910 patent.

B. The second issue presented for review is the propriety of the rejection of claims 35 and 38 under 35 U.S.C. §102(b) or §103(a) over the Garcera '910 patent.

(7) Grouping of Claims

There are two groups of claims. Claims 29 through 34, 36 through 37, and 39 comprise the first group, which stand or fall together. Claims 35 and 38 comprise the second group, which stand or fall together.

(8) Arguments

8A. Final rejection of claims 29 through 39

Claims 29-32 and 35-39 were rejected under 35 U.S.C. §102(b) or §103(a) over U.S. the Garcera '910 patent. Claims 33 and 34 were rejected under 35 U.S.C. §103(a) over the Garcera '910 patent in view of the Garcera '104 patent. The Final Office Action, as well as the subsequent Advisory Action, improperly rejected claims 29 through 39.

(i.) The Garcera '910 patent does not disclose smaller terminal regions/larger main part

Independent claim 29 recites at least one terminal region having a smaller diameter than the main part. Similarly, independent claim 36 recites a first terminal region having a first outer dimension, a main part having a second outer dimension, where the second outer dimension is larger than the first outer dimension.

The Office Action asserts that the Garcera '910 patent discloses a ceramic filter element

having a plurality of channels and ends smaller in outer dimension than the main body. As support for this assertion, the Office Action cites to the figures of the Garcera '910 patent and to col. 2, lines 5-10.

Appellants respectfully assert that col. 2, lines 5-10 of the Garcera '910 patent (hereinafter the asserted portion) does not contain an enabling disclosure sufficient to anticipate independent claims 29 and 36.

"In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within section 102, the stated test is whether a reference contains an 'enabling disclosure'... ." *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). A reference contains an "enabling disclosure" if the public was in possession of the claimed invention before the date of invention. "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985).

The asserted portion of the Garcera '910 patent states:

"Since the supports are made by extrusion, drying, and then sintering, their ends are irregular in shape because of the deformations to which they are subjected during extrusion and then sintering (bending under the effect of gravity, shrinkage at various stages, etc. . . .). It is therefore difficult to assemble such an element in an end plate while using a standard seal having a geometrically well-defined shape, e.g. an O-ring. The gap between the facing surfaces, i.e. the end of the support and the surface of the end plate, between which the seal is to be received varies too much from one position to another between these facing surfaces.

Attempts may be made to solve this problem by machining each end of the support so as to make it circularly symmetrical. However this has the effect of reducing the thickness of the "skin", i.e. the distance between the outer channels and the outside surface of the support." (emphasis added) See col. 1, line 61 through col. 2, line 10.

Thus, the Garcera '910 patent describes a problem associated with the prior art supports, namely that they are difficult to assemble in an end plate using a standard seal due to dimensional variation. Then, the asserted portion of the Garcera '910 patent provides a hypothetical solution to this problem by stating that "attempts may be made to solve this problem

by machining each end of the support”. However, the asserted portion of the Garcera ‘910 patent immediately dismisses this hypothetical solution as not being operable. Finally, the Garcera ‘910 patent offers as its solution to the problem of dimensional variation to provide a support having larger ends.

It is respectfully submitted that the hypothetical solution espoused by the asserted portion of the Garcera ‘910 reference is not sufficient to prove that the public was in possession of the combination of claims 29 and 36.

(ii.) the Garcera ‘910 patent does not disclose reinforcing smaller terminal regions

Independent claim 29 requires at least one terminal region having a smaller diameter than the main part, where the at least one terminal region is reinforced at least on a peripheral edge. Similarly, independent claim 36 requires a main part that has a larger outer dimension than the terminal region and a foil reinforcing the terminal region.

Again, the Garcera ‘910 patent describes dimensional variation as a problem associated with the prior art supports. Then, the Garcera ‘910 patent provides a non-operable hypothetical solution to this problem by stating that “attempts may be made to solve this problem by machining each end of the support”. Due to the problems of machining the ends, the Garcera ‘910 patent resolves the problem of dimensional variation by adding an extra thickness to make a shoulder that is larger than the main body.

Thus, the Garcera ‘910 patent recognizes the dimensional variation as being problematic and that machining the terminal ends to a smaller dimension as being problematic. The Garcera ‘910 patent resolves only the dimensional variation problem and does so by adding metal to the terminal regions. However, the Garcera ‘910 patent never applies its solution of adding reinforcing material to resolve the problems that come from reducing the size of the terminal region. Rather, Garcera only applies the solution of adding reinforcing material to resolve the problem of correcting the dimensional variation.

In sum, the Garcera '910 patent does not disclose reducing the size of the terminal region then adding metal to the terminal regions. Accordingly, the Garcera '910 patent does not disclose or suggest reinforcing smaller terminal regions as required by claims 29 and 36.

(iii.) the Garcera '104 patent

The Garcera '104 patent was asserted by the Office Action in combination with the Garcera '910 patent only for the purpose of rejecting dependent claims 33 and 34 under §103(a). As such, the Office Action does not assert that Garcera '104 patent discloses or suggests the elements of independent claims 29 and 36.

(iv.) Summary

Accordingly, it is respectfully submitted that the proposed combination of the Garcera '910 and '104 patents do not disclose or suggest independent claims 29 and 36. It is further submitted that the proposed combination of the Garcera '910 and '104 patents do not disclose or suggest claims 30 through 35 and 37 through 39 for at least the reason that they depend from the aforementioned claims 29 and 36. Appellants therefore respectfully request that the Board of Appeals reverse the final rejection of claims 29 through 39.

8B. Final rejection of claims 35 and 38.

Claims 35 and 38 were rejected under 35 U.S.C. §102(b) or §103(a) the Garcera '910 patent. The Final Office Action, as well as the subsequent Advisory Action, improperly rejected claims 35 and 38.

Claims 35 and 38 depend upon claims 29 and 36, respectively. As such, claims 35 and 38 requires that the terminal regions be smaller than the larger main part. Further, claims 35 and 38 each require that the dimensional differences between the terminal end and the main part define a shoulder that has the ability to take up an axial thrust force.

The Garcera '910 patent discloses, in a non-enabling manner, that attempts may be made to solve the problem of dimensional variation by machining each end of the support. See col. 1, line 61 through col. 2, line 10. However, the Garcera '910 patent does not disclose or suggest that any shoulder defined by such machining has the ability to take up axial thrust as is required by claims 35 and 38.

In fact, the Garcera '910 patent discloses that this machining is problematic as it has the effect of reducing the thickness of the "skin", i.e. the distance between the outer channels and the outside surface of the support. See col. 1, line 61 through col. 2, line 10. As such, it is submitted that machining to dimensions sufficient to take up axial thrust only furthers the problem of reducing the thickness of the "skin" already recognized by Garcera.

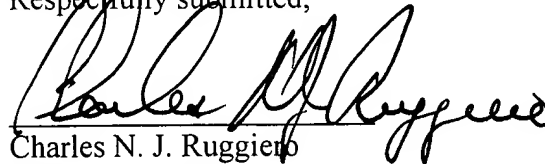
Accordingly, it is respectfully submitted that the Garcera '910 patent does not disclose or suggest claims 35 or 38. Appellants therefore respectfully request that the Board of Appeals reverse the final rejection of claims 35 and 38.

Summary

In summary, Appellants respectfully request that the Board of Appeals reverse the final rejections of claims 29 through 39, thereby enabling all of the pending claims to be allowed.

March 17, 2005

Respectfully submitted,



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APPENDIX A

Claims 29 through 39, herein on appeal, are set forth below.

29. A membrane module for filtering a medium to at least yield a permeate, comprising:

a plurality of ceramic filter elements being arranged parallel to one another, at least one of said plurality of ceramic filter elements having a main part and at least one terminal region, said at least one terminal region having a smaller diameter than said main part, said smaller diameter being defined without restricting flow of the medium through said terminal region, and wherein said at least one terminal region is reinforced at least on a peripheral edge of said at least one terminal region.

30. The membrane module of claim 29, wherein said at least one of said plurality of ceramic filter elements has a cross-sectional shape selected from the group consisting of circular, oval, hexagonal, and polygonal.

31. The membrane module of claim 29, further comprising:
a housing for enclosing said plurality of ceramic filter elements;
a cover being clamped to said at least one terminal region, said cover having a plurality of openings, said cover being perpendicular to said plurality of ceramic filter elements; and
a finished seal being between said at least one terminal region and each of said plurality of openings in said cover.

32. The membrane module of claim 31, wherein said at least one terminal region is reinforced at least on a peripheral edge of said at least one terminal region so that the medium cannot come into contact with said finished seal.

33. The membrane module of claim 31, further comprising a permeate outlet connection arranged on said housing such that an inside space of said housing is completely emptied of the permeate when the membrane module is not in operation.

34. The membrane module of claim 31, wherein said cover has an inner plate and an outer plate, said finished seal being enclosed between said inner plate and said outer plate, a free space being provided radially outside a periphery of said finished seal between said inner plate and said outer plate, said finished seal being reinforced on said periphery such that extension of said finished seal into said free space when said inner plate and said outer plate are clamped together is hindered.

35. The membrane module of claim 31, wherein said finished seal abuts a shoulder defined by said main part and said at least one terminal region, said shoulder having the ability to take up an axial thrust force that acts upon said plurality of ceramic filter elements.

36. A ceramic filter element comprising:
a first terminal region having a first outer dimension;
a main part having a second outer dimension, said second outer dimension being larger than said first outer dimension;
a foil reinforcing said first terminal region; and
a plurality of flow channels passing through said main part and said first terminal region, each of said plurality of flow channels having a constant inner dimension.

37. The ceramic filter element of claim 36, further comprising a second terminal region having said first outer dimension.

38. The ceramic filter element of claim 36, further comprising a shoulder defined by said main part and said first terminal region, said shoulder having the ability to take up an axial thrust force that acts upon the ceramic filter element.

39. The ceramic filter element of claim 36, wherein said main part and said first terminal region each have a cross-sectional shape selected from the group consisting of circular, oval, hexagonal, polygonal, and any combinations thereof.